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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/973,416 11/14/97 HARA

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EXAMINER

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ART UNIT

PAPER NUMBER

1773

7

DATE MAILED: 10/28/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/973,416

Applicant(s)

Hara et al.

Examiner

Kevin Krüer

Group Art Unit

1773



☒ Responsive to communication(s) filed on Aug 9, 1999

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-21 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-21 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. More precisely, the title should indicate that the composition comprises a zeolite and ascorbic acid.
2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. The proposed amendment on page 2, line 20 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The proposed amendment reads on composition comprising an optional porous inorganic compound, wherein the specification, as originally filed, required the inorganic compound be present.
5. The proposed amendment on page 9, line 15 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the

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application was filed, had possession of the claimed invention. It is unclear what is meant by "filled together."

6. Claims 14 and 15 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. It is unclear where Applicant finds support for amending "supporting an" to "containing." Furthermore, the amendments to the specification on page 3, line 17; page 3, line 22; page 12, line 17; page 13, line 4; and page 13, line 19; are objected to as introducing new matter into the specification.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "which is then" is indefinite. It is unclear what part of the composition is dispersed in the hydrophobic thermoplastic resin.

Claim Rejections - 35 USC § 103

9. Claims 1, 3, and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (Pat. No. 5,274,024) in view of Blinka et al. (Pat. No. 5,834,079) for reasons of record.

10. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (Pat. No. 5,274,024) in view of Blinka et al. (Pat. No. 5,834,079), as applied to

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claims 1, 3, and 5-8 above, and further in view of Moritani et al (Pat. No. 4,99,229) is maintained for reason of record.

11. Claims 1, 3, and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (Pat. No. 5,274,024) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223) for reasons of record.

12. Claims 12, 13, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (Pat. No. 5,274,024) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223), as applied to claims 1, 3, and 5-8 above, and further in view of Moritani et al. (Pat. No. 4,999,229) for reasons of record.

13. Claims 1, 3, 5-8, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bettel III (Pat. No. 5,320,889) in view of Blinka et al. (Pat. No. 5,834,979) for reasons of record.

14. Claims 1, 3, 5-8, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bettel III (Pat. No. 5,320,889) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223) for reasons of record.

15. Claims 1, 3, and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lofgren et al. (Pat. No. 5,133,999) in view of Blinka et al. (Pat. No. 5,834,079) for reasons of record.

16. Claims 1, 3, 4-9, 14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lofgren et al. (Pat. No. 5,133,999) in view of in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pa. No. 5,663,223) for reasons of record.

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17. Claims 1, 3, 5-8, 9-11, 14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itamura et al. (Pat. No. 5,492,953) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223) for reasons of record.

18. Claims 1, 3, 5-8, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itamura et al. (Pat. No. 5,492,953) in view of Blinka et al. (Pat. No. 5,834,079) for reasons of record.

19. Claims 1, 3, 5-8, 9-11, 14, and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itamura et al. (Pat. No. 5,492,953) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223). Itamura teaches a composition comprising a polyolefin and a saponified product of ethylene-vinyl acetate (abstract) in a ratio between 65:35 to 99.7:0.3 (col 4, lines 61-65). The ethylene-vinyl acetate has a saponification degree of at least 96% (abstract). The blend may be utilized in any number of different laminates (see col 9, lines 1-9) wherein F represents the ethylene/EVOH blend, A represents a polyolefin, B represents the saponified ethylene-acetate, and AD represents an adhesive. Itamura does not teach that the composition may comprise a zeolite and oxygen scavenger.

Daiichi Seiyaku teaches an oxygen scavenger comprising a zeolite, either synthetic or natural, which absorbs one or more ascorbic or araboascorbic acids, their salts or derivatives thereof. The weight of the zeolite is 1-50 times that of the ascorbic acid. The oxygen scavenger is apparently incorporated into the food it is protecting. Thus, Daiichi Seiyaku does not teach the incorporation of a zeolite into a multi-layer laminate. However, Teumac teaches that oxygen scavengers which were once added directly to foodstuff are now being incorporated into the food

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packaging container (see Background of the Invention, specifically, col 3, lines 48+). Therefore, since it is well known to incorporate oxygen scavengers into the layers of polymeric containers, it would have been obvious to one of ordinary skill in the art to incorporate the oxygen scavenger taught in Daiichi Seiyaku into the ethylene/EVOH layer of the laminate taught in Itamura in order to enhance the laminate's oxygen barrier properties.

Itamura further teaches that an additive may be blended with EVOH, extruded, pelletized, and then kneaded with the polyolefin resin (see example 24). Therefore, the examiner takes the position that it would have been obvious to one of ordinary skill in the art to knead the oxygen scavenging composition taught in Daiichi Seiyaku and EVOH together, and then disperse that composition into a polyolefin composition because Itamura shows that it is known to knead EVOH and a filler, and disperse the resulting composition into a polyolefin composition.

20. Claims 1, 3, 5-8, 9-11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itamura et al. (Pat. No. 5,492,953) in view of Blinka et al. (Pat. No. 5,834,079). Itamura teaches a composition comprising a polyolefin and a saponified product of ethylene-vinyl acetate (abstract) in a ratio between 65:35 to 99.7:0.3 (col 4, lines 61-65). The blend may be utilized in any number of different laminates (see col 9, lines 1-9) wherein F represents the blends, A represents a polyolefin, B represents the saponified ethylene-acetate, and AD represents an adhesive. Itamura does not teach that the composition may comprise a zeolite and oxygen scavenger. However, Blinka teaches a polymeric film which includes an oxygen scavenger and a zeolite. The addition of an oxygen scavenger into the packaging structure itself (col 1, lines 40-50) is well known in the art. The oxygen scavenger may be selected from the group which

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includes ascorbates (claim 1). The byproducts created from the reaction of the oxygen scavenger and oxygen can adversely affect the taste and smell of the packaged material (col 4, lines 46-52). To alleviate this problem, Blinka teaches the addition of a zeolite, which absorbs odor-causing reaction byproducts, into one or more layers of a multi-layer film (col 4, lines 52+). The zeolite may be a synthetic zeolite (claim 3) and is incorporated into the film in amounts ranging from 2-20% (col 9, lines 1-8). It would have been obvious to one of ordinary skill in the art to incorporate an ascorbic acid into the regrind layer of the laminate taught in Itamura in order to improve the oxygen permeability of the package. Furthermore, it would have been obvious to one of ordinary skill in the art to incorporate a zeolite into the regrind layer of the laminate taught in Itamura in order to prevent migration of oxygen scavenging byproducts which could affect the taste and odor of the container's contents.

Itamura further teaches that an additive may be blended with EVOH, extruded, pelletized, and then kneaded with the polyolefin resin (see example 24). Therefore, the examiner takes the position that it would have been obvious to one of ordinary skill in the art to knead the oxygen scavenging composition taught in Blinka and EVOH together, and then disperse that composition into a polyolefin composition because Itamura shows that it is known to knead EVOH and a filler, and disperse the resulting composition into a polyolefin composition.

21. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of the above combination of references and further in view of Hofeldt et al. (Pat. No. 5,204,389) for reasons of record.

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Response to Arguments

22. Applicant's arguments filed August 18, 1999, have been fully considered but they are not persuasive.

Applicant argues that Koyama in view of Blinka does not teach the unique aspects of the present invention; the decrease in oxygen barrier characteristics of component B and the increase in oxygen absorbing characteristics of component A which occur only when the resin composition of the present invention comes into contact with aqueous liquid foods. Applicant makes a similar argument with respect to the rejections based upon Koyama in view of Blinka and Moritani, Koyama in view of Koyama and Teumac, Bettel in view of Blinka, Lofgren in view of Daichii Seiyaku, Bettel in view of Daiichi Seiyaku and Teumac, Itamura in view of Daiichi and Teumac, and Itamura in view of Blinka. While the cited references do not directly teach that the oxygen barrier characteristics of component B will decrease and the oxygen absorbing characteristics of component A will increase when the resin composition of the present invention comes into contact with aqueous liquid foods, the examiner takes the position that one of ordinary skill in the art would have expected such results. The oxygen permeability of vinyl alcohol is known to increase when its moisture content increases (aka when it is exposed to a liquid solution). For example, Torre et al. (Pat. NO. 5,591,495) discloses that the oxygen permeability of vinyl alcohol increases when water vapor pressure increases (col 1, lines 38+). Markiewicz (Pat. No. 4,927,689) discloses that the gas permeability of vinyl alcohol increases when its water content increases (col 3, lines 45+). Akkapeddi et al. (Pat. No. 4,826,955) discloses that the oxygen permeability of vinyl alcohol increases at high humidities due to the plasticizing effect of water

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(col 1, lines 13+). Hatakeyama discloses that vinyl alcohol is hygroscopic, and absorbs water when in contact with it (col 3, lines 1+). Therefore, from the combined disclosures of the prior art, one of ordinary skill in the art would have assumed that the oxygen barrier characteristics of component B would have decreased when the resin composition of the present invention came into contact with aqueous liquid foods. Hatakeyama also teaches that water is involved in the oxygen absorption reaction (col 2, lines 22+). Therefore, one of ordinary skill in the art would expect the oxygen absorbing characteristics of component A to increase when the resin composition of the present invention comes into contact with aqueous liquid foods since water is essential to the oxygen absorption reaction.

Applicant argues that Daichii Seiyaku assumes the ascorbic acids have to be released from porous inorganic compounds to exhibit their oxygen absorbing capability. When the porous inorganic compounds containing ascorbic acids are incorporated in a hydrophobic thermoplastic resin, it is expected that the ascorbic acids would not be released from the porous inorganic compounds. Therefore, Applicant argues that a novel feature of the present invention is incorporation of ascorbic acid into porous inorganic compounds as described nor suggested in any cited references. The examiner disagrees with applicant's interpretation. The cited art is unclear exactly what is meant by "released." Does "release" mean that the ascorbic acid is separated from the zeolite support, or does it mean that the ascorbic acid is free to interact with the vapor? Furthermore, the cited art states that the ascorbic acid is released when contacted with vapor. In the present invention, the ascorbic acid is contacted with vapor. Therefore, the examiner takes the position that the prior art mechanism for ascorbic acid release is analogous to the presently

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claimed invention. Furthermore, the prior art as a whole suggests that antioxidants remain active when absorbed into a base material, and incorporated into a polymeric film. For example, Hatakeyama et al. teaches that the ascorbic acid may be absorbed into an inorganic carrier and incorporated into a polymer film (col 5, lines 55+). Therefore, Applicant's arguments are found not to be persuasive.

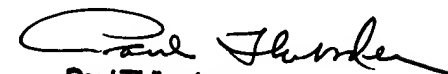
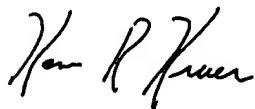
Conclusion

23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R. Kruer whose telephone number is (703) 305-0025. The examiner can normally be reached on Monday-Friday from 7:00 a.m. to 4:00 p.m.

Kevin R. Kruer
Patent Examiner



Paul Thibodeau
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